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AN 1999:236585 CAPLUS
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 TI Epoxy resin compositions and semiconductor devices sealed therewith
 IN Ueda, Shigehisa
 PA Sumitomo Bakelite Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 15 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM C08L063-00
 ICS C08G059-24; C08G059-32; C08G059-40; C08G059-62; C08K003-36;
 H01L023-29; H01L023-31
 CC 38-3 (Plastics Fabrication and Uses)
 Section cross-reference(s): 76
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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0 PI JP 11100490 A2 19990413 JP 1997-263953 19970929
 AB The compns. comprise (A) .gtoreq.1 epoxy resins selected from
multifunctional epoxy resins GOC6H4-mRm[CH[C6H4-n(Rn)OG]C6H3-m(Rm)(OG)]1H
(I) and MeC[C6H4-n(Rn)OG]2-p-C6H4CMe2Q1G (R = halo, Cl-12 alkyl; G =
glycidyl; Q1= Rn-substituted 1,4-phenylene; l = 1-10; m = 0-3; n = 0-4)
and/or cryst. epoxy resins with m.p. 50-150.degree. of 4,4'-biphenol
diglycidyl ether, hydroquinone diglycidyl ether, 4,4'-stilbenediol
diglycidyl ether, 4,4'-methylenediphenol diglycidyl ether, their halo
and/or Cl-12 alkyl derivs., and Q2(CH2-p-C6H4CH2Q3)1H (Q2, Q3 =
4,4'-biphenol diglycidyl ether group, its halo and/or Cl-12 alkyl deriv.;
l = 1-10), (B) phenolic resin curing agents HOC6H4-mRm[CH[C6H4-
n(Rn)OH]C6H3-m(Rm)(OH)]1H (II) R, m, n, and l are same as above), (C)
curing accelerators, and (D) fused SiO2 powders, content of U and Th

being

.ltoreq.2 ppb. Substantially only semiconductor element-mounted side of
substrate is sealed with the compns. The semiconductor devices have
 excellent reliability. Thus, a compn. of D (m, n = 0; Epikote 1032H)

4.3, 3,3',5,5'-tetramethyl-4,4'-biphenol diglycidyl ether (YX 4000H) 4.3, (II
(m, n = 0; MEH 7500) 4.4, Ph3P 0.2, fused SiO2 (0.1 ppb U, 0.1 ppb Th)
86.0, carnauba wax 0.5, and carbon black 0.3 part showed spiral flow 80

cm

and was transfer molded to give a ball grid array package showing reduced
warpage and good solder heat and thermal shock resistance.

ST epoxy resin semiconductor packaging warpage redn; thermal shock
 resistance
 epoxy resin semiconductor; solder heat resistance epoxy resin
 semiconductor; uranium free semiconductor packaging epoxy resin; thorium
 free semiconductor packaging epoxy resin

IT Phenolic resins, uses
 RL: MOA (Modifier or additive use); RCT (Reactant); RACT (Reactant or
 reagent); USES (Uses)

(crosslinking agent; epoxy resin compns. for semiconductor device
 packaging with good reliability)

IT Electronic packaging materials
 Heat-resistant materials
 Semiconductor devices

(epoxy resin compns. for semiconductor device packaging with good
 reliability)

IT Phenolic resins, uses
 Phenolic resins, uses

7pp
 14
 15
 14
 15

RL: DEV (Device component use); IMF (Industrial manufacture); POF
(Polymer
in formulation); PRP (Properties); PREP (Preparation); USES (Uses)
(epoxy; epoxy resin compns. for semiconductor device packaging with
good reliability)

IT Epoxy resins, uses
Epoxy resins, uses
RL: DEV (Device component use); IMF (Industrial manufacture); POF
(Polymer
in formulation); PRP (Properties); PREP (Preparation); USES (Uses)
(phenolic; epoxy resin compns. for semiconductor device packaging with
good reliability)

IT Crosslinking agents
(triphenolmethane-type phenolic resins; epoxy resin compns. for
semiconductor device packaging with good reliability)

IT **112755-07-4**
RL: MOA (Modifier or additive use); RCT (Reactant); RACT (Reactant or
reagent); USES (Uses)
(crosslinking agent; epoxy resin compns. for semiconductor device
packaging with good reliability)

IT **174882-88-3P**, Epikote 1032H 223591-58-0P 223591-59-1P
223591-60-4P 223591-61-5P 223591-62-6P 223596-22-3P
RL: DEV (Device component use); IMF (Industrial manufacture); POF
(Polymer
in formulation); PRP (Properties); PREP (Preparation); USES (Uses)
(epoxy resin compns. for semiconductor device packaging with good
reliability)

IT 222053-12-5
RL: DEV (Device component use); POF (Polymer in formulation); PRP
(Properties); USES (Uses)
(phenolic resin-crosslinked; epoxy resin compns. for semiconductor
device packaging with good reliability)

IT 60676-86-0, Fused silica
RL: DEV (Device component use); MOA (Modifier or additive use); USES
(Uses)
(with regulated uranium and thorium; epoxy resin compns. for
semiconductor device packaging with good reliability)